Loureiro Engineering Associates, Inc.

December 4, 2000

Army Corps of Engineers
Regulatory Branch
696 Virginia Road
Concord, MA 01742

Attn: Robert DeSista
Chief, Connecticut Projects

RE: Willow Brook and Willow Brook Pond
PCB Remediation Project
United Technologies Corporation/Pratt & Whitney (UTC/P&W)
East Hartford, Connecticut

Dear Mr. DeSista:

In response to our recent conversation, enclosed please find a description of the proposed project to remediate polychlorinated biphenyls (PCBs) in soil and sediment within Willow Brook and Willow Brook Pond at the UTC/P&W facility in East Hartford, Connecticut. The project is being performed with oversight from both the United States Environmental Protection Agency (EPA) and the Connecticut Department of Environmental Protection (DEP).

The approach outlined in the attached information involves the excavation and offsite disposal of soil and sediment containing total PCBs at concentrations greater than 25 parts per million (ppm), and with the exception of the approximately 1-acre wetland located downstream of the dam which will be excavated to 1 ppm PCBs then restored, the placement of a soil and rock cap over the entirety Willow Brook and Willow Brook Pond from the Main Street culvert upstream to the outlet of the existing 108 inch diameter pipe to the upper pond. This approach will result in the permanent removal of the most significantly contaminated soil and sediment and, through the installation of a permanent soil and rock cap, the elimination of human health and ecological exposure pathways to the remaining soil and sediment containing less than 25 ppm total PCBs.

UTC/P&W respectfully request a pre-application meeting with representatives of the Army Corps of Engineers to discuss the project. As discussed, it is our intention to provide an introduction and overview of the project at the pre-application meeting, to obtain guidance from Army Corps staff regarding the appropriate permitting approach to the project, and to answer any questions that arise. We have also been in contact with Melissa Toni of the Connecticut DEP, Inland Water Resources Division. Based on our conversations with Ms. Toni, it appears that a joint pre-application meeting with both DEP and Army Corps could be held at the DEP offices in Hartford Connecticut on December 18, 2000, January 8, January 22, or January 29, 2001. Following the meeting, a visit of the project site could also be arranged.

UTC/P&W is committed to the completion of the project during the 2001 construction season and recognize the level of effort and time necessary to secure permits from the various regulatory agencies maintaining jurisdiction over the project. In recognition of this, we are eager to initiate the pre-application process. If the above dates or proposed meeting location are not acceptable, we would be amenable to traveling to your offices or establishing an alternative arrangement to meet with Army Corps representatives separately. Once the project has been assigned to an Army Corps Project Manager and they have had the opportunity to review the enclosed information, please contact me or Lauren Levine of United Technologies Corporation at (860) 728-6520 to discuss any initial questions or comments and to establish a meeting date.

Sincerely,

LOUREIRO ENGINEERING ASSOCIATES, INC.

Brian A. Cutler, P.E.
Vice President

cc: Lauren Levine, UTC
Jim Cline, UTC
Melissa Toni, DEP Inland Water Resources Division
Ernest Waterman, EPA
Kim Tisa, EPA

PROJECT DESCRIPTION
PCB REMEDIATION IN SOIL AND SEDIMENT
WILLOW BROOK AND WILLOW BROOK POND
UTC/P&W East Hartford, Connecticut

The proposed remedial approach involves the excavation and offsite disposal of soil and sediment containing total PCBs at concentrations greater than 25 ppm (except for the wetland downstream of the dam where PCB contaminated sediment will be removed to 1 ppm), the placement of a soil and rock cap over the entirety Willow Brook and Willow Brook Pond from the Main Street culvert upstream to the outlet of the existing 108 inch diameter pipe to the upper pond, and the restoration of an approximately 1-acre wetland. This approach will result in the permanent removal of the most significantly contaminated soil and sediment and, through the installation of a permanent soil and rock cap, the elimination of human health and ecological exposure pathways to the remaining soil and sediment containing less than 25 ppm total PCBs.

The remediation will involve the excavation and offsite disposal of approximately 8,500 cubic yards of soil and sediment containing PCBs at concentrations greater than 25 ppm from within and immediately surrounding Willow Brook and Willow Brook Pond. It is anticipated that the soil and sediment will be stabilized onsite utilizing up to six percent lime by weight to eliminate free-draining liquids. Following stabilization, soil and sediment will be disposed of at a permitted offsite disposal facility.

The proposed excavation program will progress from upstream to downstream within Willow Brook Pond and Willow Brook. The approximate horizontal limits of the soil and sediment removal activities are presented on Figure 1. Based on the prior investigations, it is anticipated that an average of 2 to 3 feet of sediment will be removed from Willow Brook Pond and up to 4 feet of sediment will be removed from the wetland north of Willow Brook. Confirmatory soil samples collected during the remediation will provide the final horizontal and vertical limits of "hot spot" excavation.

The remediation approach also involves the demolition and offsite disposal of the existing process water facility, the removal and offsite disposal of an underground oil/water separator, and the excavation and offsite disposal of impacted soil in the vicinity of the oil/water separator. The location of the process water facility and oil/water separator are shown on Figure 1. All construction demolition debris resulting from the proposed demolition activities will be disposed of at a permitted offsite disposal facility.

Following the excavation and demolition activities, Willow Brook and Willow Brook Pond will be restored. The planned restoration activities are described below and depicted on Figure 2. The site restoration involves the installation of 4 different types of caps over soil and sediments remaining following excavation and removal activities. The cap details were derived based on the anticipated stream flow velocities and considered the ultimate use of the area as a combined wetland, pond, and stream channel. The base of each consists of a non-woven geotextile, a 9-inch layer of organic rich soil, and a non-woven geotextile. This layer is referred to below as an organic-rich layer. This organic rich layer is provided as a contingency to mitigate any potential

for PCBs to migrate vertically upward through the proposed soil and rock cap. Each cap is described below and depicted on Figure 3.

- Within Willow Brook Pond, a 36-inch soil and stone cap is proposed (refer to Figure 3). The cap will consist of a 9 inch organic rich layer, 21 inches of process gravel, and a 6-inch layer of 4-inch stone. As the flow velocity in Willow Brook Pond is extremely low and is controlled by the dam at the outlet to the pond, the stone lining will provide adequate protection against erosion.

- Within Willow Brook (downstream of the dam), a 36-inch soil and stone gabion cap is proposed (refer to Figure 3). The cap will consist of a 9 inch organic rich layer, 15 inches of process gravel, and a 12-inch thick stone gabion armor. The 12-inch thick gabion armor has been selected based on the ability to withstand significant erosive forces without deterioration. The gabions will be installed parallel to flow and consist of a chain-link basket filled with 12-inches of stone. The stone is completely enclosed within the chain link enclosure and will be designed to sustain more than double the maximum 4-foot per second anticipated velocity in Willow Brook.

- The wetland north of Willow Brook will be restored by providing a soil and wetland sediment cap consisting of the 24 inches of process gravel, and 12-inches of wetland soil. The wetland will be revegetated with native wetland plants.

- The area of the underground oil/water separator will be provided with an engineered control to comply with the requirements of the Connecticut Remediation Standard Regulation. The engineered control will consist of a 40-mil flexible membrane liner, a geotextile drainage layer, 30-inches of granular backfill, and a 6-inch loam and seed layer.

Following restoration activities, UTC/P&W will implement two institutional controls to ensure the long-term protectiveness of the proposed remedy. The institutional controls consist of 1) a deed restriction to ensure the affected area will not be used for residential purposes and to prohibit excavation and 2) installation of a fence around the entire area to preclude access to Willow Brook and Willow Brook Pond (refer to Figure 2).

LEGEND

- PROPERTY LINE
- FENCE
- GUARDRAIL
- BUILDING
- ELEVATION CONTOUR
- EDGE OF SURFACE WATER (VARIES)
- HEAVY VEGETATION
- EXCAVATION AREA (TOTAL PCB's >25 ppm)

RISLEY STREET

EXISTING UNDERGROUND PIPE

RESIDENTIAL

UPPER WILLOW BROOK POND

EXISTING CULVERT (TO REMAIN)

PAVED PARKING

PROCESS WATER FACILITY (TO BE DEMOLISHED)

WETLAND RESTORATION

WETLAND

WILLOW BROOK POND (TO REMAIN)

EXISTING DAM (TO REMAIN)

WILLOW BROOK (TO REMAIN)

MAIN STREET

WILLOW STREET

EXISTING CULVERT

PARCEL

40

0 150' 300'

GRAPHIC SCALE

NOTES:

1. BASE MAP FROM ELECTRONIC FILE OF LOUREIRO ENGINEERING ASSOCIATES, P.C. DRAWING, DATED 12/1/98 AND FROM USGS AERIAL PHOTOGRAPHY, 1994.

REMEDIAL ACTION WORK PLAN
UTC\P & W, Willow Brook & Willow Brook Pond

PROPOSED REMEDIATION ACTIVITIES

Comm.No. B8UT002.001

FIGURE 1

B8UT002-FIG1.dwg

WETLAND RESTORATION, STREAM AND SEDIMENT CAPS

SEE FIGURE 3 FOR DETAILS

WETLAND RESTORATION AREA

LIMIT OF STREAM CHANNEL CAP

LIMIT OF SEDIMENT CAP

LIMIT OF ENGINEERED CONTROL

LEGEND

PROPERTY LINE

FENCE

GUARDRAIL

BUILDING

ELEVATION CONTOUR

EDGE OF SURFACE WATER (VARIES)

RISLEY STREET

EXISTING UNDERGROUND PIPE

RESIDENTIAL

CULVERT

PAVED PARKING

PAVED PARKING

WILLOW BROOK POND

DAM

PAVED PARKING

40

40

MAIN STREET

WILLOW STREET

PAVED PARKING

PAVED PARKING

40

40

40

EXISTING CULVERT

PARCEL

0 150' 300'

GRAPHIC SCALE

NOTES:

1. BASE MAP FROM ELECTRONIC FILE OF LOUREIRO ENGINEERING ASSOCIATES, P.C. DRAWING, DATED 12/1/98 AND FROM USGS AERIAL PHOTOGRAPHY, 1994.

REMEDIAL ACTION WORK PLAN

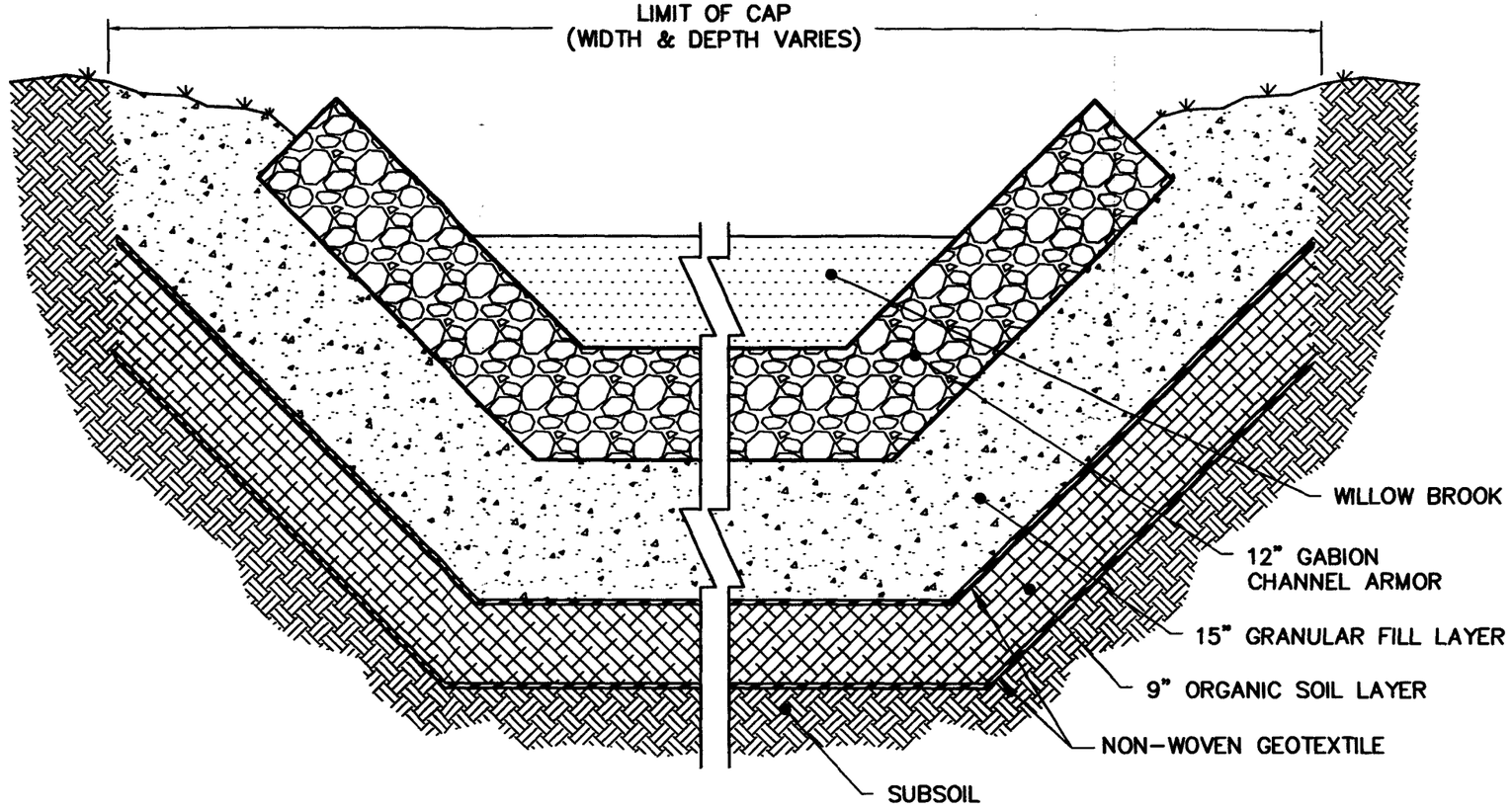
UTC\P & W, Willow Brook & Willow Brook Pond

PROPOSED SITE RESTORATION

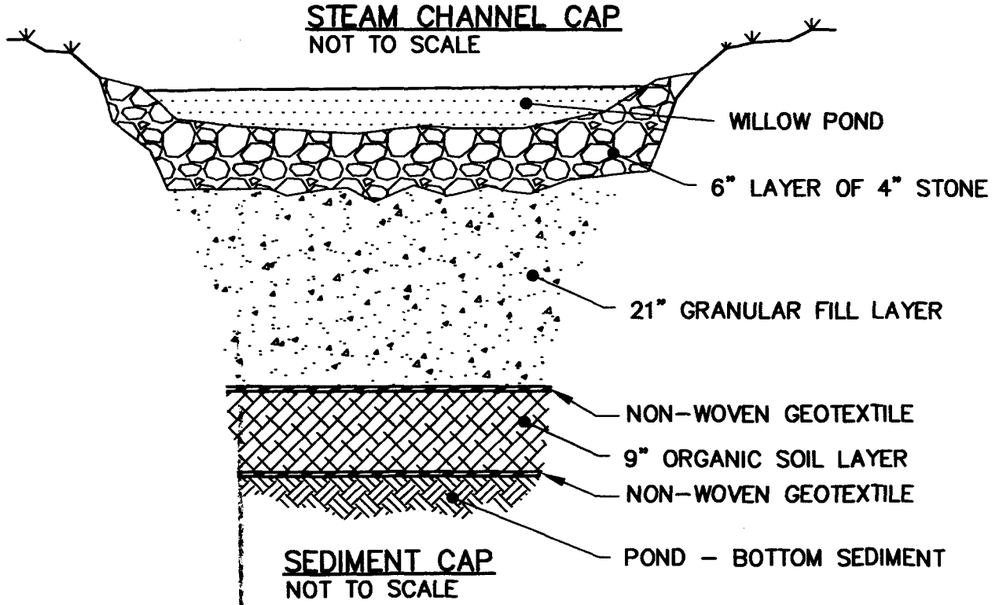
Comm.No. 88UT002.001

FIGURE 2

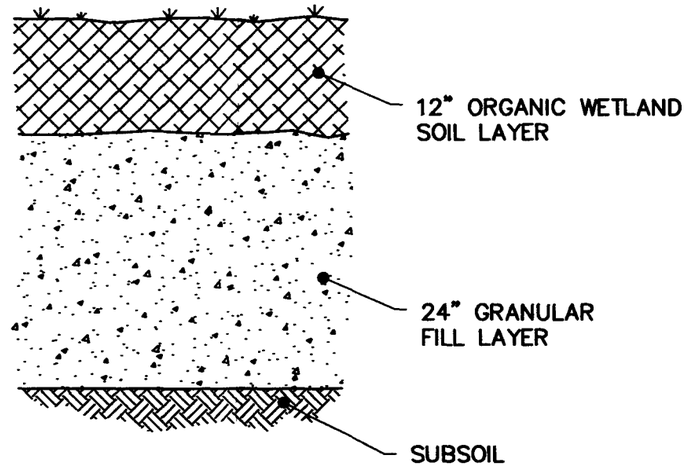
88UT002-FIG2.dwg



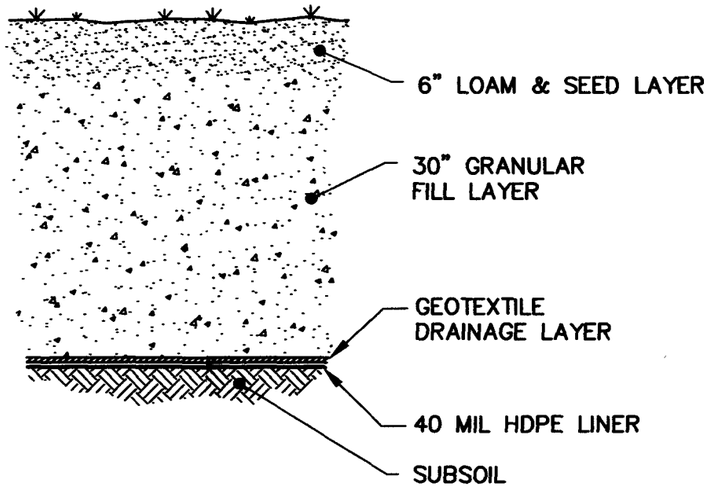
STEAM CHANNEL CAP
NOT TO SCALE



SEDIMENT CAP
NOT TO SCALE



WETLAND RESTORATION AREA
NOT TO SCALE



ENGINEERED CONTROL
NOT TO SCALE

REMEDIAL ACTION WORK PLAN
UTC\P & W, Willow Brook & Willow Brook Pond

PROPOSED SITE RESTORATION
WETLAND RESTORATION AND CAP DETAILS

Comm.No.	FIGURE 3	LEA
88UT002.001		

88UT002-FIG3.dwg